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BOOKS AND PERIODICALS.

Theory of Functions of Real Variables. By James Pierpont, Professor of Mathematics in Yale University. Vol. I. 8vo. Cloth, xii+560 pages. Price, $4.50. Boston: Ginn & Co.

This work, which the author says is based upon a course of lectures given by him at Yale University, is designed to present the more important results in the theory of functions of real variables. Vol. I is devoted to the foundations of the Differential and Integral Calculus. It is divided into sixteėn chapters. In Chapter I, rational numbers, the laws governing their generation, and some of their properties are discussed; Chapter II, deals in the same way with irrational numbers; Chapter III, with exponentials and logarithms; Chapter IV, with elementary functions; Chapter V, with first notions of point aggregates; Chapter VI, with limits of functions; Chapter VII, with continuity and discontinuity of functions; Chapter VIII, differentiation; Chapter IX, with implicit functions; Chapter X, with indeterminate forms; Chapter XI, with maxima and minima; Chapter XII, with integration; Chapter XIII, with proper integrals; Chapter IV, improper integrals, integrand infinite; Chapter XV, improper integrals, interval of integration infinite; and Chapter XVI, multiple proper integrals.

The theorems are first explicitly stated and then proved. Many examples of incorrect forms of reasoning currently found in standard works on the calculus are given to emphasize the necessity of a more critical study of fundamentals and at the same time "to stimulate the critical sense of the student." While that part of the work developing the theory of irrationals as introduced by Cantor and Dedekind, the theory of point aggregates or masses of points, and the theory of discontinuous functions are not as fully treated as those familiar with the profound researches of Cantor, Weierstrass, Neumann, and others might wish, yet the author for writing and the publishers for publishing it, have placed the American mathematical world under obligations to them. It is extremely gratifying to see an American publishing company taking upon itself the responsibility of publishing such works as this and Goursat's *Cours d'Analyses*, with no possibility of great financial returns, but solely with a view of encouraging the development of mathematics in America. They should receive, therefore, every possible encouragement for the interest they are thus manifesting in disseminating by such publications, the refined views of modern mathematicians.
B. F. F.

A Course in Mathematical Analysis. By Édvard Goursat, Professeur à la Faculté des Sciences de Paris. Authorized translation by E. R. Hedrick, Professor of Mathematics in the University of Missouri. Vol. I. 8vo. Cloth, viii+548 pages. Illustrated with 52 diagrams. Price, $4.00. Boston: Ginn & Co.

The French edition of this valuable work appeared in 1902, and a critical review of it, by Professor W. F. Osgood, of Harvard University, appeared in the *Bulletin of the American Mathematical Society*, Vol. IX, No. 10, 1903. At Professor Osgood's suggestion, the translation of the work into English was undertaken.

In this work, the fundamental principles of the calculus are established with great rigor and thoroughness. It begins with the foundations of the calculus, assuming, however, that the student has already had an elementary course in this subject. In the first chapter, precise definitions of *limit, function, derivative,* etc., are given. Chapter II is an exposition of the modern treatment of implicit functions, functional relations, and transformations. In Chapter III, Taylor's Theorem and its applications are presented in an admirable manner. Also the subject of maxima and minima is treated with equal rigor and elegance. The ambiguous case is treated with considerable fullness. The word *extremum* is used as a generic term for maximum and minimum. Chapters IV, V, VI, and VII deal with definite and indefinite integrals from the modern point of view. The definite integral is defined as sum and the fundamental properties and formulas are established from it. In Chapter VIII, infinite series, including series of imaginary terms, and the theory of uniform convergence are discussed. Chapter IX supplements Chapter VIII with a treatment of power series and trigonometric series, including Fourier's Series. Chapters X, XI, and XII deal with curves and surfaces.

The work is one that is sure to appeal strongly to those teachers of mathematics who wish to put into the hands of their students a book eminently scholarly and accurate in treatment and embracing the most modern materials and applications. An equal service would be rendered to the American mathematical public, were some one to put into good English with the necessary annotations and proofs of many of the unproved theorems of Dini's *Theory of Functions*, and other epoch-making works on mathematics which are generally unknown to most teachers of mathematics. B. F. F.

The current number of the *Proceedings of the London Mathematical Society* contains the following papers:

The Intersection of Two Conic Sections (continued), by Mr. J. A. H. Johnston; On the Projection of Two Triangles on the Same Triangle, by Professor M. J. M. Hill, Dr. L. N. G. Filon, and Mr. H. W. Chapman; On the Condition of Reducibility of any Group of Linear Substitutions, by Professor W. Burnside; On a Class of Analytic Functions, by Mr. G. H. Hardy; Linear Content of a Plane Set of Points, by Dr. W. H. Young.

ERRATA.

On page 207, line 5 from bottom, for $\frac{d^2\,\theta'}{dt'}$ read $\frac{d^2\,\theta'}{dt'^2}$.

On page 208, line 6 trom bottom, for $\frac{d^2\theta''}{d\,t''_2}$ read $\frac{d^2\theta''}{dt''^2}$.

On page 211, line 22 should read, $x^5+qx^2+px+\frac{1}{5}\left[\frac{q^2}{p}-\frac{p^3}{5q}\right]=0$.